adequate response. The aim of this study was to compare use of xanthines in the treatment of chronic respiratory diseases between Serbia and the Scandinavian countries in the period from 2004 to 2013. **METHODS:** The data on utilization of drugs for obstructive airway diseases (ATC group R03) during the ten-year period (2004-2013) were retrieved by a retrospective, observational, population-based study, from the Medicines and Medical Devices Agency of Serbia, Finnish Medicines Agency Fimea, Danish Statens Serum Institut and Norwegian Institute of Public Health. ATC/DDD methodology was applied and the results were expressed in defined daily doses per 1000 inhabitants per day (DID). **RESULTS:** While the utilization of xanthines (R03DA) showed a significant tendency to decrease in all Scandinavian countries during the whole observed period of time (4.4-fold in Denmark, 3.46-fold in Norway and 2.38-fold in Finland), in Serbia on the other hand, xanthines represented the most used drugs in the R03 group, with no clear decrease tendency. In 2013, xanthines accounted for less than 2% of total use of drugs in R03 group in Finland, Norway and Denmark (1.25 DID, 0.61 DID and 0.50 DID, respectively), versus 26% (7.11 DID) in Serbia. **CONCLUSIONS:** The large differences in utilization of xanthines between Serbia and other observed countries may suggest considerable lower number of exacerbations of COPD in the Scandinavian countries due to better control of chronic respiratory diseases. **Acknowledgement:** This work was supported by the Provincial Secretariat for Science and Technological Development, Autonomous Province of Vojvodina, project No. 114-451-2458/2011 and by the Ministry of Education, Science and Technological Development, Republic of Serbia, project No. 41012.

PRS13

MANAGEMENT OF SORE THROAT IN COMMUNITY PHARMACY IN FRANCE: A NATIONAL OBSERVATIONAL STUDY

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OBJECTIVES: A previous study was conducted in France, in 2013, to evaluate the physicians' prescribing practices related to sore throat. Special attention was paid to the use of rapid diagnostic test (TROD). The present study aims at describing how sore throat is managed at the community pharmacy-level and at identifying the patients' expectations concerning this condition. **METHODS:** This was a national observational study conducted in community pharmacies distributed around France. It included two components: a questionnaire for pharmacists, administered by phone, and a self-administered survey submitted to adult patients spontaneously consulting pharmacists for sore throat. For the patient population, the data collected consisted in demographics, severity of sore throat and expectations. The pharmacists were interviewed on the type of products and advice delivered. **RESULTS:** A total of 167 pharmacies were included in the study and 1663 patient questionnaires were analyzed. Data collected revealed that most patients (72%) seek pharmacists' advice for sore throat in the first 48 hours after onset and expect in priority a relief of difficulty swallowing and/or pain. Most patients suffered from at least one associated symptom such as running nose or headache. About 40% of patients were advised to consult a physician especially when sore throat lasted longer or was associated to a higher number of concomitant symptoms. Combinations of antiseptic and local anesthetic represent the most frequently advised product for sore throat in pharmacies. TROD were not currently offered in most pharmacies (86%) but 2 pharmacists out of 3 consider delivering it in the future depending on adequate training and economic return. **CONCLUSIONS:** The management of sore throat in pharmacies largely relies on over-the-counter medications. A wider availability of TROD could enable a better disease management and relevant referral to physicians in the case of bacterial involvement.

PRS14

IDENTIFICATION OF SUBGROUPS WITH LOW RATES OF SMOKING CESSATION IN ISRAEL

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OBJECTIVES: Tobacco consumption is a major public health concern. Every six seconds someone dies due to smoking and every second smoker will die from smoking-related disease. Smoking double the risk of cardiovascular morbidity and all-cause mortality, but smoking cessation significantly reduces this risk. In order to best target resources for intervention, this study identified subgroups in a generalizable population who have the lowest smoking cessation rates. **METHODS:** This is a population-based retrospective observational study that assessed cessation rates among members of Clalit Health Services (Clalit), the largest health maintenance organization in Israel, who were aged 18 and older and reported that they were current smokers between 2010 and 2014. **RESULTS:** There are about 642,000 Clalit members who reported that they were current smokers during the past between 2010 and 2014 (consistent with the national rate of 21.1% in 2014). Of those 14.1% reported in 2014 that they quit smoking, versus 11.0% of the smokers reported that they had quit smoking in 2011. Cessation rates were lowest among women of certain age groups: 7.2% for those aged 18-21 and 13.8% for those aged 45-54 versus 19.9% for those aged 25-34, and 22.5% for those aged 65-74. Smokers from lower socioeconomic status had lower smoking cessation rates compared to higher socioeconomic status (11.0% vs. 19.0%, respectively). **CONCLUSIONS:** As of 2014, only one in seven currents smokers reports quitting and members from low socioeconomic status and young and midlife-age females have the lowest smoking cessation rates. Therefore, healthcare providers and smoking cessation interventions should consider focus on those populations.

PRS15

PATTERN AND FACTORS ASSOCIATED WITH READMISSION IN PATIENTS HOSPITALIZED FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN TAIWAN

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OBJECTIVES: Hospital readmission has been an important issue in patients with chronic obstructive pulmonary disease (COPD), as it reflects exacerbation of the disease and quality of medical care, and incurs high medical expenditures. This study aimed to examine pattern and economic burden of readmission, and identify factors associated with risk of readmission in patients hospitalized for COPD in Taiwan. **METHODS:** The National Health Insurance claims database of a representative sample (two million subjects) of Taiwanese population in 2005 was adopted for this study. Adult individuals who were discharged from acute hospitals for COPD in 2005 were selected and their readmission pattern one-year after discharge were examined. Cox proportional hazards regression models were adopted to identify factors associated with risk of readmission. **RESULTS:** The majority of the subjects was male and aged older than 65 years old. The 30-day, 3-month and one-year all-cause readmission rates were 28%, 46%, and 69%, respectively. The 30-day, 3-month and one-year COPD-specific readmission rates were 10%, 17%, and 31%, respectively. Approximately one-fourth of the subjects were readmitted more than twice during the follow-up. COPD, pneumonia, and respiratory failure/insufficiency/arrest were the top three most frequent causes for readmission during 30 days, 3 months, or one year after discharge. In the one-year follow-up, hospital readmission accounted for 73% of total healthcare expenditures. Gender, previous hospitalization history, comorbidities, and length of stay and hospital accreditation level of the index hospitalization were associated with risk of all-cause readmission. Gender, previous hospitalization history, and length of stay and hospital accreditation level of the index hospitalization were associated with risk of COPD-specific readmission. **CONCLUSIONS:** This study identified patterns and causes of short-term and long-term readmission, and factors associated with risk of readmission in patients hospitalized for COPD. The information is of importance for planning interventions to reduce hospital readmission rate.

RESPIRATORY-RELATED DISORDERS – Cost Studies

PRS16

THE BUDGET IMPACT OF DUORESP® SPIROMAX® COMPARED WITH COMMONLY PRESCRIBED DRY POWDER INHALERS FOR THE MANAGEMENT OF ASTHMA AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN ITALY: ESTIMATED IMPACT OF INHALATION TECHNIQUE

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OBJECTIVES: DuoResp® Spiromax® (budesonide + formoterol fumarate dihydrate) is a fixed-dose combination (FDC) of inhaled corticosteroid (ICS) + long-acting beta agonist (LABA) in a novel dry powder inhaler (DPI). An economic model was developed to assess the budget impact of switching adult patients with persistent asthma and chronic obstructive pulmonary disease (COPD) from market-leading DPIs in the Italy – budesonide/formoterol Turbohaler® and fluticasone/salmeterol Diskus® – to DuoResp® Spiromax®. The potential cost benefit of improved inhalation technique due to the innovative characteristics of the Spiromax® inhaler was also investigated. **METHODS:** The eligible adult patient population was based on current confirmed Italian asthma and COPD diagnosis rates, with the proportion of patients receiving FDCs based on market research data. Costs of FDCs were taken from "Farmadati Italia" database and costs of scheduled and unscheduled healthcare events were based on "Tariffario Regione Lombardia", with the number of events estimated based on publically available UK sources. Frequency of poor inhalation technique, and the associated increased risk of unscheduled healthcare events, were taken from a large (n=1,664) cross-sectional, Italian observational study. Reduction in the proportion of patients with poor inhalation technique with DuoResp® Spiromax® was based on assumption. **RESULTS:** An estimated 196,419 adult patients used budesonide/formoterol Turbohaler® and 505,564 fluticasone/salmeterol Diskus® annually in Italy with 85,442 and 174,451 of these estimated to exhibit poor inhalation technique, respectively. Assuming a hypothetical uptake of DuoResp® Spiromax®reaching 10.1% in year 5 and assumed Italian prices, the model predicted drug cost savings totalling €53.66 million. Furthermore, 33,948 unscheduled healthcare events could be avoided due to the predicted improvement in inhalation technique with DuoResp® Spiromax® compared with these DPIs, resulting in further savings of €4.12 million. **CONCLUSIONS:** DuoResp® Spiromax® is likely to offer budgetary savings compared with market-leading DPIs, with further cost savings potentially resulting from improved inhalation technique.

PRS17

TIOROPIUM+OLODATEROL RESPIMAT; BUDGET IMPACT IN THE UK

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OBJECTIVES: Chronic Obstructive Pulmonary Disease (COPD) is a prevalent disease with a significant economic burden to the UK National Health Service (NHS). NICE recommends maintenance treatment including inhaled bronchodilator medications, such as long-acting muscarinic antagonists (LAMAs) and long-acting beta-2-agonists (LABAs). The objective of this model was to quantify the budget impact to the NHS of switching patients with moderate to very severe COPD from tiotropium to tiotropium + olodaterol Respimat®, compared with remaining on tiotropium monotherapy. **METHODS:** The model used a deterministic individual-level Markov approach to compare scenarios with and without the introduction of tiotropium + olodaterol Respimat®into the health economy. Patients progressed through the model based on their individual FEV1 values at baseline and their post-treatment FEV1 value over 5 years. Relative treatment effects (estimated from a

mixed-treatment comparison) were applied at 2 weeks. Lung function decline after 2 weeks was applied independent of treatment arm but dependant on GOLD stage. Exacerbation risk, health outcomes and costs of COPD management were calculated based on GOLD stage. Cost inputs were taken from published literature. **RESULTS:** The 5-year budget impact of displacement of tiotropium by tiotropium + olodaterol Respimat®was a cost-saving of £25.8 million, £2.7 million, £1.6 million, and £0.9 million, in England, Scotland, Wales, and Northern Ireland respectively. These cost-savings were largely driven by a predicted 0.8% reduction in COPD management costs, and a predicted 0.9% reduction in the costs of exacerbation management. **CONCLUSIONS:** Switching patients with COPD from tiotropium maintenance to tiotropium + olodaterol Respimat® maintenance therapy has the potential to be cost-saving to the UK NHS. These cost-savings largely result from a predicted reduction in primary and secondary care costs. Whilst treatment switching should be driven by clinical rationale and patient preference, this finding has implications for medicine optimisation in the UK.

PRS18

THE BUDGET IMPACT OF AN INHALER WITH IMPROVED FEATURES COMPARED TO SPIRIVA® HANDIHALER® FOR THE MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) IN THE UK: ESTIMATED IMPACT ON UNSCHEDULED HEALTHCARE COSTS AND INHALER SATISFACTION

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OBJECTIVES: Spiriva® Handihaler® (tiotropium) is a single capsule dry powder inhaler (DPI) for the treatment of COPD. A budget impact model was developed to assess the potential economic impact of introducing an inhaler with improved features compared to Spiriva® Handihaler®to treat COPD in the UK. The potential cost benefit of increasing treatment satisfaction, due to the improved characteristics of this new inhaler was investigated. **METHODS:** The eligible patient population presented was based on the number of confirmed COPD diagnoses in the UK, with the proportion of patients receiving Spiriva® Handihaler® based on market research data. The costs of scheduled and unscheduled healthcare events presented within the model were taken from publically available UK sources. Findings from a multinational, cross-sectional, real-world survey of 1,443 COPD patients associating inhaler attributes, inhaler satisfaction, adherence and patient health status were used within the model to determine the correlations between inhaler satisfaction, treatment adherence and unscheduled healthcare events. Using these correlations, an annual number of UK unscheduled healthcare events associated with COPD was calculated for patients using a new improved inhaler and Spiriva® HandiHaler®. **RESULTS:** The annual UK costs of treating COPD patients for unscheduled healthcare events were €1027.05 with Spiriva® HandiHaler®vs. €922.14 with the new inhaler. Potential budgetary savings achieved by using the new inhaler instead of HandiHaler® were calculated at €104.91 per patient and €16.69 million for the UK COPD patient population per year. **CONCLUSIONS:** There is a potential for a new improved tiotropium inhaler to offer budgetary savings compared with Spiriva® Handihaler® resulting from cost benefits due to increased patient satisfaction with their inhaler.

PRS19

ESTIMATING SEASONAL ALLERGIC CONJUNCTIVITIS MARKET SIZE AND SPENDING

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OBJECTIVES: This study estimated the total expenditure on prescribed Seasonal Allergic Conjunctivitis (SAC) medication in the UK and the budget impact of switching patients to alternative treatments. **METHODS:** A budget impact model developed from the UK NHS and Personal Social Services (PSS) perspective was used to evaluate total spending on: olopatadine, generic sodium cromoglicate, branded sodium cromoglicate, nedocromil sodium. A 4-month time horizon was applied (average allergy season duration). Direct to patient data (National Health and Wellness Survey [NHWS]) were used to estimate the number of patients receiving prescription SAC treatment. Published 42-day efficacy data were input for each product, with patients classified as either successfully treated or unsuccessfully treated at 14, 28, 42, and 120 days. Unsuccessful treatment required additional resource use and switch to further therapy. Two approaches extrapolated clinical data to 120 days: A) No decline after 42-days, B) linear decline in efficacy. Cost per treatment was estimated and multiplied by its market size to estimate the total current spend in the UK. Model structure and inputs were validated with clinical KOLs. **RESULTS:** Under scenario A olopatadine treatment was associated with the lowest cost. Olopatadine spending over a four month period was £100.08 versus £104.39 for sodium cromoglicate. Under scenario B, sodium cromoglicate treatment resulted in costs of £114.97 versus £124.07 with olopatadine. An estimated 3,161,807 UK adults are treated in the Rx market (NHWS). Total spending was estimated to exceed £300,000,000 under all scenarios. Under scenario A switching all patients to olopatadine may result in savings of £15,378,769. **CONCLUSIONS:** Increasing olopatadine market share in SAC may be cost-saving when compared against alternative treatments for SAC. The use of direct to patient surveys are an important source in market sizing when considering markets split across prescription and over-the-counter treatments.

PRS20

BUDGETARY IMPLICATIONS OF INTRODUCING THE GSK ELLIPTA PORTFOLIO FOR COPD IN THE UK

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OBJECTIVES: The GSK Ellipta portfolio medicines are licensed for treatment of COPD in the UK and is comprised of fluticasone furoate/vilanterol, umeclidinium bromide/vilanterol and umeclidinium bromide. A budget impact model (BIM) was designed to explore the cost implications of prescribing Ellipta portfolio in appropriate patients versus alternative therapies, in line with clinical guidelines. **METHODS:** a one-year BIM was constructed to explore financial implications of prescribing Ellipta medicines as alternative treatment options to currently prescribed therapies. The BIM is based on UK prescription analysis, epidemiological and resource data. The BIM uses prescription data to generate patient cohorts and progresses them to more intensive therapy based on estimates of symptoms of exacerbation or breathlessness. It also considers medicines optimsation for patients that could benefit from simplified regimens and estimates the budget impact of moving patients using non-licensed ICS/LABA to licensed therapies. The model allows definition of treatment progressions, using appropriate Ellipta devices to target bronchodilator or steroid based regimens. Costs are calculated using market share of current treatments vs. a scenario in which Ellipta medicines are used. Differences in patient outcomes, efficacy or safety are not explored. **RESULTS:** It is estimated that the average health economy in the UK has 5,518 COPD patients of whom 1,320 are eligible to be progressed in their medication. In year 1, compared to a base case of utilising the most routinely used existing COPD therapies (100% implementation rate for new incident patients and 50% for all others) would increase spend by £247,830 compared with a reduced budget impact of -£131,920 if these eligible patients were moved to Ellipta medicines. **CONCLUSIONS:** The introduction of Ellipta portfolio in COPD could potentially reduce the budget impact and total spend on COPD therapies by £379,750 in the average UK health economy compared to current prescribing patterns. Funded by GSK

PRS21

BUDGET IMPACT ANALYSIS OF FORMOTEROL EASYHALER IN THE TREATMENT OF ASTHMA IN CHILDREN IN THE RUSSIAN FEDERATION

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OBJECTIVES: To conduct the budget impact analysis of Formoterol Easyhaler, which allowed to determine the net economic effect of the budget impact in regards of replacement of one medicine to another. **METHODS:** Information search was conducted in the public domain. Pharmacoeconomic analysis method – budget impact and direct cost analysis were performed. **RESULTS:** In this study, given the pharmacoeconomic evaluation of drugs Formoterol Easyhaler, Oxis Turbuhaler, Foradil Aerolizer and Atimos. The study had a time horizon of one year. The daily dose of formoterol was 24 mcg. Cost analysis was conducted on the cost of basic pharmacotherapy, compensation costs for treatment of exacerbations, compensation costs for side effects and adverse reactions. The total direct cost per patient with asthma amounted to 1 262, 17$ to the Easyhaler group, 1 581, 83$ to the Turbuhaler group, 1 498,95 and 1 499,99 to the Foradil (30 and 60 doses), and 1 705, 06$ to the Atimos. The selection of budget impact method of pharmacoeconomic analysis was determined by the advantages of Formoterol Easyhaler in terms of its efficiency and lower value of total direct costs. In the present study, based on the results of the "cost analysis" it was revealed that the replacement formoterol of Oxis Turbuhaler, Foradil Aerolizer (30 and 60 doses) and Atimos on Easyhaler saved per patient respectively 319,66$, 236,78$ (187, 82$ for 60 doses) and 442,89$ for the health care system budget. **CONCLUSIONS:** The budget impact analysis results obtained in this Formoterol Easyhaler versus others drugs of formoterol comparative study demonstrated that Easyhaler therapy resulted in budget saving.

PRS22

COST SAVING STUDY OF FIVE GRASS POLLEN SLIT TABLET VERSUS SCIT'S & SYMPTOMATIC TREATMENT

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OBJECTIVES: Allergic rhinitis (AR) is a chronic disease of the upper respiratory tract caused by exposure to allergens inducing inflammation of the nasal mucosa and of the conjunctiva mediated by antibody Immunoglobulin E (IgE). According to local literature, prevalence of symptomatic AR is around 20% and grass pollen is the most common allergen causing A (%5 of uncontrolled moderate / severe AR) in Turkey. Allergen-specific immunotherapy (AIT) is recommended as a second line treatment for patients with moderate to severe allergic rhinitis not or poorly controlled by symptomatic treatments.The Five Grass Pollen Sublingual Tablet (5GPST) is an alternative AITin Turkey. The aim of this budget impact model (BIM) was to assess the cost saving potential of the 5GPST inthe Turkish reimbursement system. **METHODS:** Cost calculations were madefrom the payer perspective as per the guidelines of the Social Security Institution (SSI). The time horizon considered in the model was one year. The clinical data and Rescue Medication Scores were acquired from published clinical studies. Direct medical costs were considered in this analysis. Pricing and reimbursement prices data are obtained from Ministry of Health Drug Price List and the Price List of SSI Health Implementation Guideline. **RESULTS:** According to the BIM, total cost of AR treatment for a patient treated with symptomatic treatment alone was 373 TL per year and reached 1.607 TL per year for patients receiving subcutaneous immunotherapy. Total cost of AR with5GPSTwith %11discount for the first reimbursement year was 1.168 TL. Total yearly cost of AR with 5GPST with % 41 discount was 864 TL. **CONCLUSIONS::** Compared to subcutaneous AIT, 5GPST is a cost saving alternative fortreatment of seasonal AR in Turkey from a SSI perspective. The treatment is 27% or 46% cheaper applying 11% or 41% discount rates respectively.

PRS24

BURDEN OF COMMUNITY-ACQUIRED PNEUMONIA IN ADULTS OVER 18 YEARS OF AGE

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